

Rec'd PCT/PTO 29 SEP 2004

10/509583

REC'D 07 MAY 2003

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FILING DATE.

APPLICATION NUMBER: 60/370,497

FILING DATE: April 05, 2002

RELATED PCT APPLICATION NUMBER: PCT/US03/09881

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## PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

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### INVENTOR(S)

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Additional inventors are being named on the 1 separately numbered sheets attached hereto

### TITLE OF THE INVENTION (280 characters max)

INTERNET PORTAL SYSTEM AND METHOD EMPLOYING HANDHELD DEVICE THAT CONNECTS TO BROADCAST SOURCE

### CORRESPONDENCE ADDRESS

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### ENCLOSED APPLICATION PARTS (check all that apply)

<input checked="" type="checkbox"/> Specification Number of Pages	11	<input type="checkbox"/> CD(s), Number	
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets	8	<input type="checkbox"/> Other (specify)	
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76			

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No.

Yes, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_.

Respectfully submitted,  
SIGNATURE

Date 04/05/02

REGISTRATION NO. 42,824

(if appropriate)

Docket Number:

9432-000181

TYPED or PRINTED NAME Timothy D. MacIntyre

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Number 1 of 1

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## INTERNET PORTAL SYSTEM AND METHOD EMPLOYING HANDHELD DEVICE THAT CONNECTS TO BROADCAST SOURCE

### BACKGROUND OF THE INVENTION

**[0001]** The present invention relates generally to network-based portals that integrate broadcast source information with other information that has been downloaded to a client device. More particularly, the invention relates to a client-server system for delivery of broadcast information and other information to a handheld device useful in interactive multimedia and interactive television applications.

**[0002]** Current Internet portals are designed for computer access, typically through a web-browser. While it is possible to download information about television programs from such a portal, the result is very limited because there is little or no integration between the computer, the television and the portal. Future interactive television programs are likely to need better portal conductivity than is currently available. The present invention is designed to fill that need.

### SUMMARY OF THE INVENTION

**[0003]** The present invention provides a client-server system where the server functions as an Internet portal and the client is deployed on a handheld device. The handheld device functions to download television program-related contents and to upload user data for interactive television applications. Unlike with conventional Internet access, the handheld device also communicates with a

broadcast source (such as a television broadcast source) to automatically receive program-identifying information that is used to select the proper Internet IP address or addresses for the applicable interactive functions. The program-identified information may consist of simple IP address information or it may comprise more complex collections of data organized in a variety of different data structures including list data structures and nested directory data structures. These more complex data structures allow the user to select among different classes of requests that can be made of the interactive system.

**[0004]** In accordance with the invention, several useful business models are supported. In one embodiment advertisers purchase space on the portal. Because this portal communicates with the client handheld devices, the subscribing advertisers are, in effect, purchasing advertising space that is actually placed in the palm of the consumers hand. In another business model consumers subscribe to the portal services and the portal provides premium services and premium information through the handheld device. For a more complete understanding of the invention, its objects and advantages, refer to the remaining specification and to the accompanying drawings.

**[0005]** Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0006]** Figure 1 is a block diagram illustrating an exemplary embodiment of a system in accordance with the invention;

**[0007]** Figure 2 is a data flow diagram illustrating how messages are passed between client and server in accordance with the invention;

**[0008]** Figures 3A and 3B are flowcharts illustrating how requests may be processed at the client and server, respectively, in accordance with the present invention;

**[0009]** Figures 4A-4D illustrate exemplary nested data structures in accordance with the invention;

**[0010]** Figure 5 is a block diagram illustrating an exemplary commerce architecture utilizing a content provider model;

**[0011]** Figure 6 is a block diagram illustrating an exemplary commerce architecture utilizing a direct-to-customer model;

**[0012]** Figure 7 is a block diagram illustrating an exemplary commerce architecture utilizing a full-service provider model;

**[0013]** Figure 8 is a block diagram illustrating an exemplary commerce architecture utilizing a intermediary model;

**[0014]** Figure 9 is a block diagram illustrating an exemplary commerce architecture utilizing a shared infrastructure model;

**[0015]** Figure 10 is a block diagram illustrating an exemplary commerce architecture utilizing a value net integrator model;

[0016] Figure 11 is a block diagram illustrating an exemplary commerce architecture utilizing a virtual community model; and

[0017] Figure 12 is a block diagram illustrating an exemplary commerce architecture utilizing a whole-of-enterprise model.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0019] In one presently preferred form the invention defines a system that supplies information to a handheld device from a plurality of disparate sources that are not conventionally compatible. For example, the system can supply information to the handheld device from a broadcast source of the type normally designed to deliver contents to a television. In addition to that source the system also supplies information from a packet-based delivery system such as a computer network or the Internet. Accordingly, one embodiment of such a system has been illustrated in Figure 1. Referring to Figure 1, the television 10 may include a set top box 12 that receives content from a broadcast source 14. The set top box 12 may include a tuner and is also equipped with the ability to communicate wirelessly with the handheld device 18. In the illustrated embodiment the handheld device 18 is a remote control device that has a touch screen 20 on which the user can view information and also make selections using a suitable stylus 21. The handheld device 18 communicates wirelessly

with set top box 12 to receive information from the broadcast source 14. In a digital television application the information destined for the handheld device may be encoded within the digital data stream. In this regard, the MPEG-2 standard provides for the delivery of such digital content. In an analog television application the information destined for the handheld device 18 may be encoded within the vertical blanking interval (VBI) or using suitable encoding technology such as is available from Veil Interactive Technologies, St. Louis, Missouri.

**[0020]** Information is also supplied to the handheld device 18 from another disparate source. In the embodiment illustrated in Figure 1 this disparate source comprises an Internet-based portal. As illustrated, a server 22 which is operating the portal server software module 23 communicates with the Internet 24. A suitable gateway device 26 is coupled to the Internet and provides wireless connectivity with the handheld device. This way packet-delivered information is supplied to the handheld device 18. It is envisioned that the gateway 26 and the set top box 12 may be physically combined within one unit.

**[0021]** Although the principles of the invention can be extended to a wide variety of different applications, Figure 1 illustrates a particularly useful application in implementing interactive television features that are not typically found in other systems. The handheld device has internal memory that is configured as a local data store 30 into which a local copy of selected electronic program guide (EPG) information may be stored. Typically, the EPG information is available from the broadcast source 14 in at least a basic channel-time-program content format. While the available bandwidth within a digital broadcast

source is sufficient to deliver more information than the simple EPG data described above, current analog broadcast sources have limited bandwidth for such information and are thus typically restricted to simple EPG data content. The present invention overcomes this limitation by utilizing additional information obtained from the Internet (or from some other source disparate from the broadcast source). The information received from the broadcast source and from the other source (e.g., server 22) is integrated and used by a client application program 32 running on the handheld device 18.

**[0022]** Figure 2 shows how the client and server interact with one another to provide interactive functionality. Specifically, Figure 2 shows the client 32 in communication with server 22. The flow of messages has been labeled by the circled sequence numbers. Note that the client 32 has locally stored knowledge of basic EPG information contained within data store 30.

**[0023]** Referring to Figure 2 and proceeding first from left to right, the user of the handheld device enters a series of requests into the handheld device. These requests can be of different types. Illustrated here are three different request types. Request\_001 records the user's vote in response to a query or selection being offered via the broadcast source 14. The offering may be viewed on the television 10 or on the display screen 20 of the handheld device. Request\_002 corresponds to a user's request to download a particular selection of additional media content such as an MP3 audio file from the server. Request\_003 corresponds to an e-commerce transaction, such as an order placement.

**[0024]** The requests are processed by the client application 32 and then transmitted using the TCP/IP protocol over the Internet (not shown) to server 22. The transmission can take place in "real time" as a response to a live broadcast event, or at a later time, when the handheld device has the opportunity to connect to the network. Similarly, the server's response can result in live video broadcast, such as presenting viewers with poll results, or being cached by the handheld device for future use. It will be appreciated that while the Internet presently represents the most convenient mechanism for delivery of packet-based content, other types of networks may also be employed to connect client with server, if desired. A more detailed flowchart illustrating how the client application may process incoming requests is shown at Figure 3A.

**[0025]** The server 22 processes the request messages sent to it by the client 32 as illustrated at 50. It associates each of the requests with a different IP address, based on criteria such as the request type, the IP address of the client 32, other user-identifying information obtained from client 32 or from some other server, date and time information, and/or combinations thereof. In the illustrated embodiment of Figure 2, the request type is used to assign the IP address to each request. Server 22 then passes the respective requests to their respective IP addresses where responses are generated as illustrated diagrammatically at 52. These responses are then sent by server 22 (or by other servers in receipt of the requests from server 22) back to client 32 as TCP/IP encoded packets. A more detailed flowchart illustrating how the server 22 may process incoming requests is shown at Figure 3B.

[0026] Figure 2 thus illustrates how different types of requests can be divided up at the server and delivered to different systems for processing. In the illustrated embodiment, a server at IP address 192.168.1.123 receives the user's vote and sends back the vote result. The server at 192.168.1.128 handles the user's request for an MP3 file. Similarly, the server at 192.168.1.125 processes the user's e-commerce order and sends back an order confirmation.

[0027] Even more sophisticated message processing can be effected by taking into account other information such as the identity of the user, date and time information, GPS data and/or other portable data that a handheld device may gather. For example, when the system is used to deliver advertising content, the advertising content can be tailored to different geographic regions based on user-identifying information or on user's gateway IP address. Date and time information can be used to control advertising content as well. For example, certain content may be restricted to certain times of day when young children are less likely to be watching, or certain content may be modified depending on the day to correspond with local store sale schedules. Figures 4A-4D illustrate some exemplary nested data structure which may be used to implement the aforesaid more sophisticated message processing.

[0028] The Internet portal system of the invention can be architected in a variety of different ways to achieve different business goals. Figures 5-12 illustrate several of these. In each architectural model, the broadcast source and server source work together to place interactive capabilities into the user's hand that have not heretofore been achieved. Each of these architecture models

affords opportunities for improving message delivery and viewer attention, thereby improving viewership ratings and increasing advertising revenues for the content suppliers. If the broadcast source is a TV network, for example, then it can be part of the money flow, enjoying revenues and supplying content 'goods'.

**[0029]** In each of Figures 5-12, the end user or users receive information from a broadcast source 14 and also from a portal 23 in accordance with the invention. Figures 5-12 illustrate different ways of utilizing the portal to effect different forms of commerce.

**[0030]** Figure 5 shows a content provider commerce model in which the portal 23 functions as an intermediary service provider. The intermediary service provider obtains content from the content provider and supplies this content to the end user.

**[0031]** Figure 6 shows a direct-to-customer commerce model in which the portal 23 serves as the primary supplier of goods and services to the end user.

**[0032]** Figure 7 illustrates a full service provider commerce model in which the portal 23 provides a plurality of different related or unrelated services to the end user. Portal 23 communicates with a plurality of different sponsors and suppliers by which sponsoring content material and third party goods and services are obtained and delivered to the end user.

**[0033]** Figure 8 illustrates the use of the portal in an intermediary commerce model configuration. In this case, an intermediary portal 23a cooperates with an ally portal 23b. The intermediary portal receives content from

third party sellers and advertisers, which may also pay the intermediary money as fees for providing the portal service. The intermediary portal delivers information to the end users either directly or through the ally portal 23b. The end users can then transact business either through the intermediary portal 23a or directly with the third party sellers.

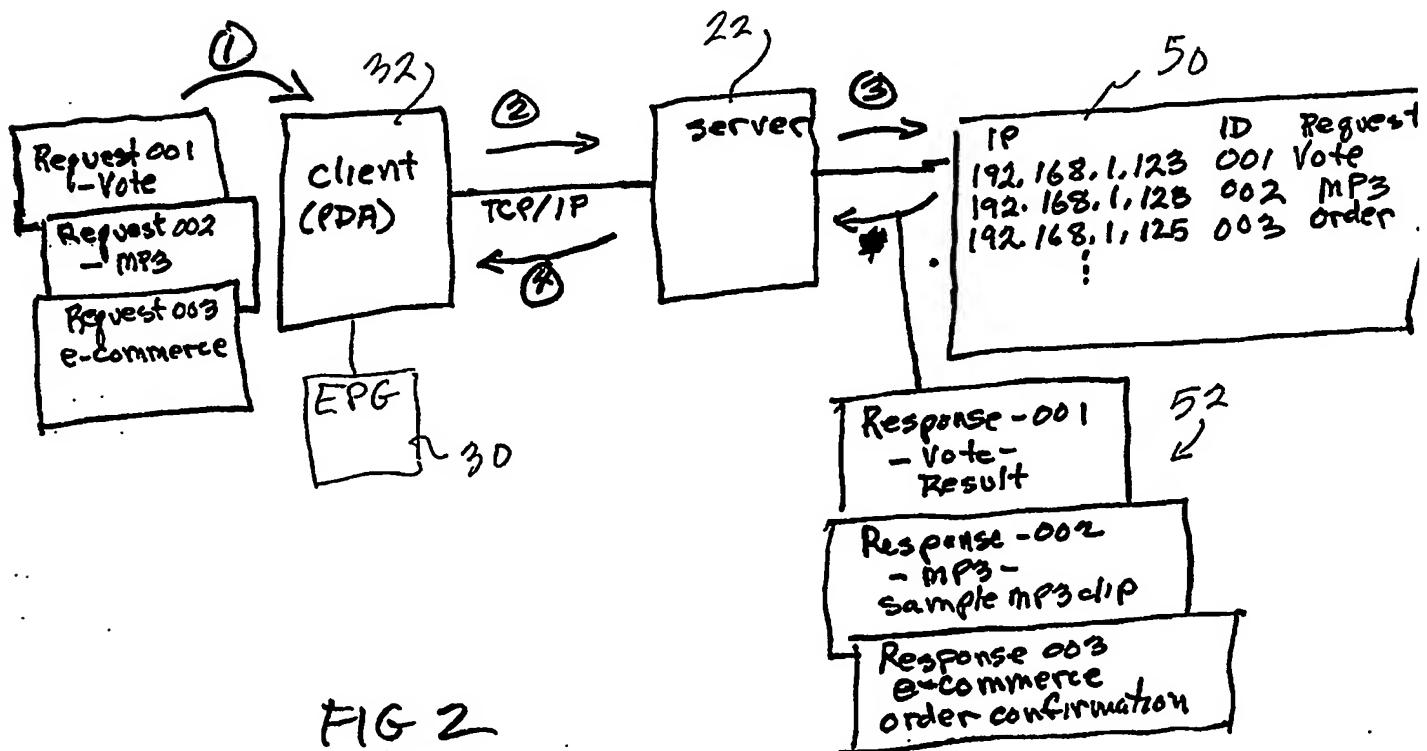
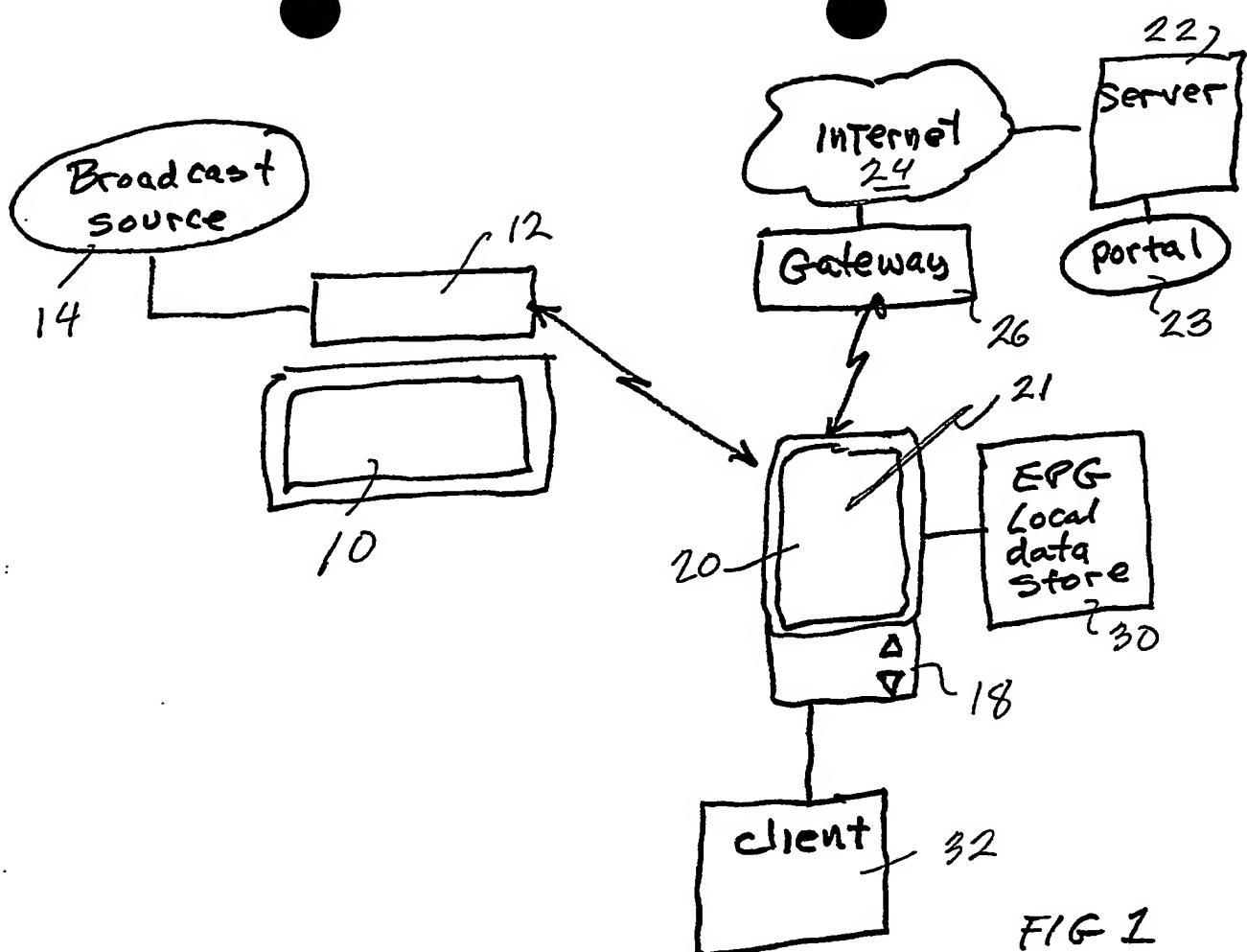
**[0034]** Figure 9 illustrates a shared infrastructure commerce model in which a plurality of suppliers and infrastructure owners cooperate by providing product information to a shared infrastructure portal 23. Customers communicate with the portal 23 to purchase goods and services from the suppliers and owners. If desired, ally portals may also be utilized to effect commerce between customer and owner (or supplier) and between customer and the shared infrastructure portal.

**[0035]** Figure 11 illustrates a virtual community commerce model to which a plurality of members may belong or subscribe. The virtual community serves as a portal 23 to which suppliers can communicate information about products and services offered. Members access the virtual community portal 23 to exchange information and to transact business with the suppliers.

**[0036]** Figure 12 illustrates a whole-of-enterprise commerce model that is designed to encapsulate a plurality of functions offered by different business units of an enterprise. The portal server 23 communicates with these business units and makes information about each business unit's products and services available to users. Of course, if desired, the users can access the sites of the

business units directly, as illustrated by the lines connecting User 1 and Business Unit A and between User 3 and Business Unit C.

[0037] The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the gist of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.



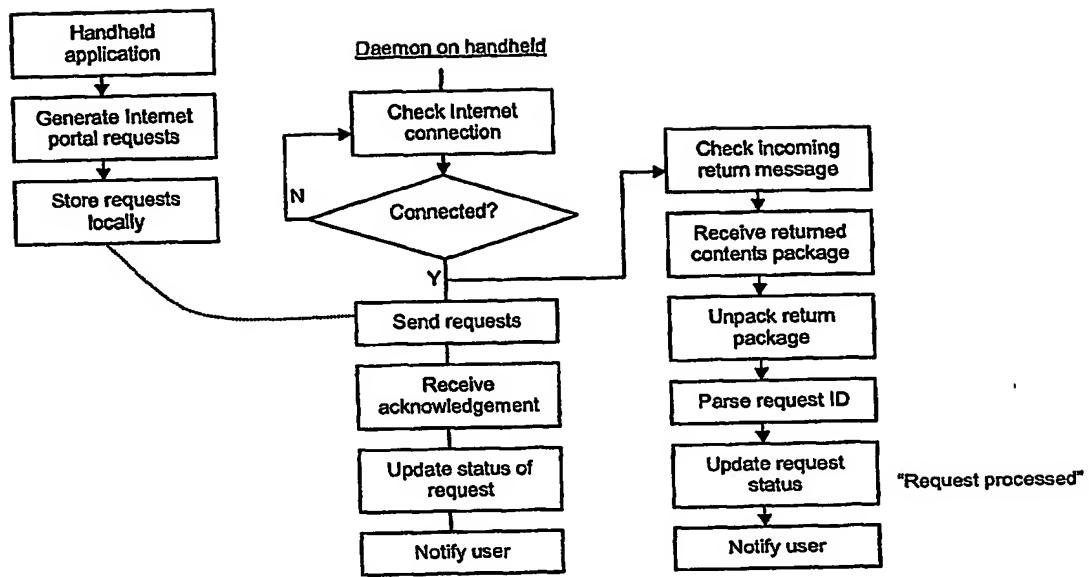


Figure 3A Portal request handling on handheld.

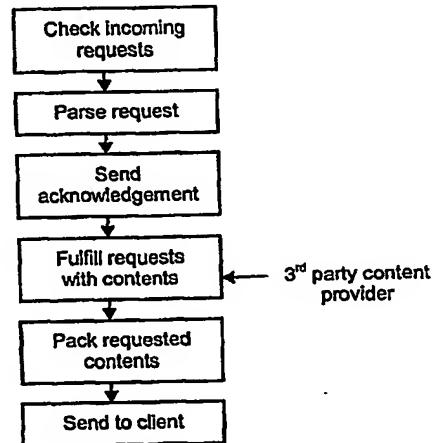


Figure 3B Portal server request handling.

- <request id="D4867" type="download" subtype="cd" date="2002-02-22"  
  time="14:30:58"  
  <uri value="7684D.jar" />  
- <customer>  
  <id>HH-0231-03</id>  
  <name>John Smith</name>  
  <email>jsmith@bol.com</email>  
  </customer>  
</request>

FIG. 4A

- <request id="M18653" type="download" subtype="movie" date="2002-02-29"  
  time="16:05:08"  
  <uri value="35681M.jar" />  
- <customer>  
  <id>HH-0237-03</id>  
  <name>John Daniels</name>  
  <email>daniels@bol.com</email>  
  </customer>  
</request>

FIG. 4B

- <request id="E632833" type="epg" date="2002-09-27" time="16:33:32">  
  <url value="epg.jar" />  
  - <epg>  
    <channel>**sports, music, 17, 32**</channel>  
  </epg>  
  - <customer>  
    <id>**HH-0231-03**</id>  
    <name>**John Larry**</name>  
    <email>**Larry@bol.com**</email>  
  </customer>  
</request>

FIG 4C

- <request id="C04562" type="order" date="2002-02-22" time="14:45:08">  
  <uri value="order.jar" />  
  - <bill type="credit card">  
    - <card>  
      <number>**524276870909**</number>  
      <expire>**2003-10**</expire>  
      <name>**John Smith**</name>  
      <address>**2 Research Way, 3rd Floor Princeton, NJ 08540**</address>  
      <telephone>(**609**)734-7340</telephone>  
    </card>  
    - <shipping>  
      <name>**Tim Smith**</name>  
      <address>**1011 Palm Square Princeton, NJ 08544**</address>  
      <telephone>(**609**)347-3470</telephone>  
    </shipping>  
  </bill>  
  - <customer>  
    <id>**HH-0231-03**</id>  
    <name>**John Smith**</name>  
    <email>**jsmith@bol.com**</email>  
  </customer>  
</request>

FIG 4D

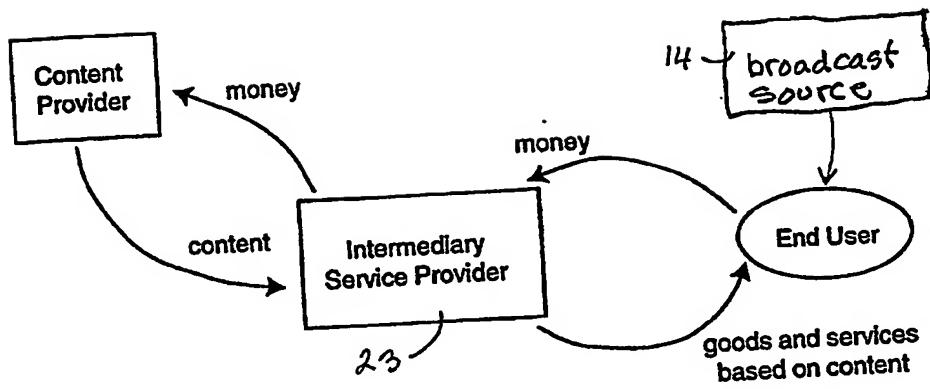


FIG 5 CONTENT PROVIDER MODEL

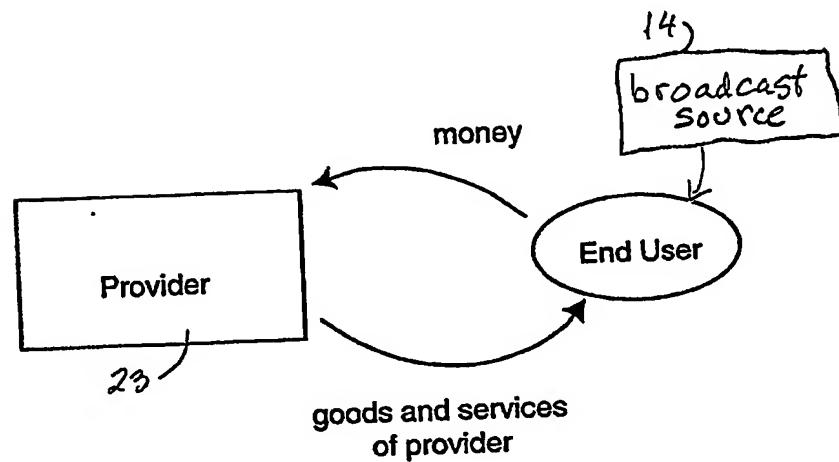
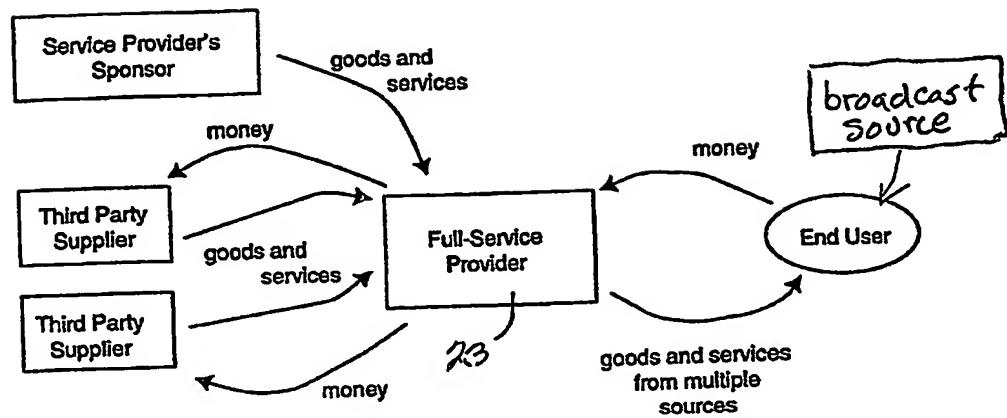


FIG 6 DIRECT-TO-CUSTOMER MODEL



## FIG. 7 FULL-SERVICE PROVIDER MODEL

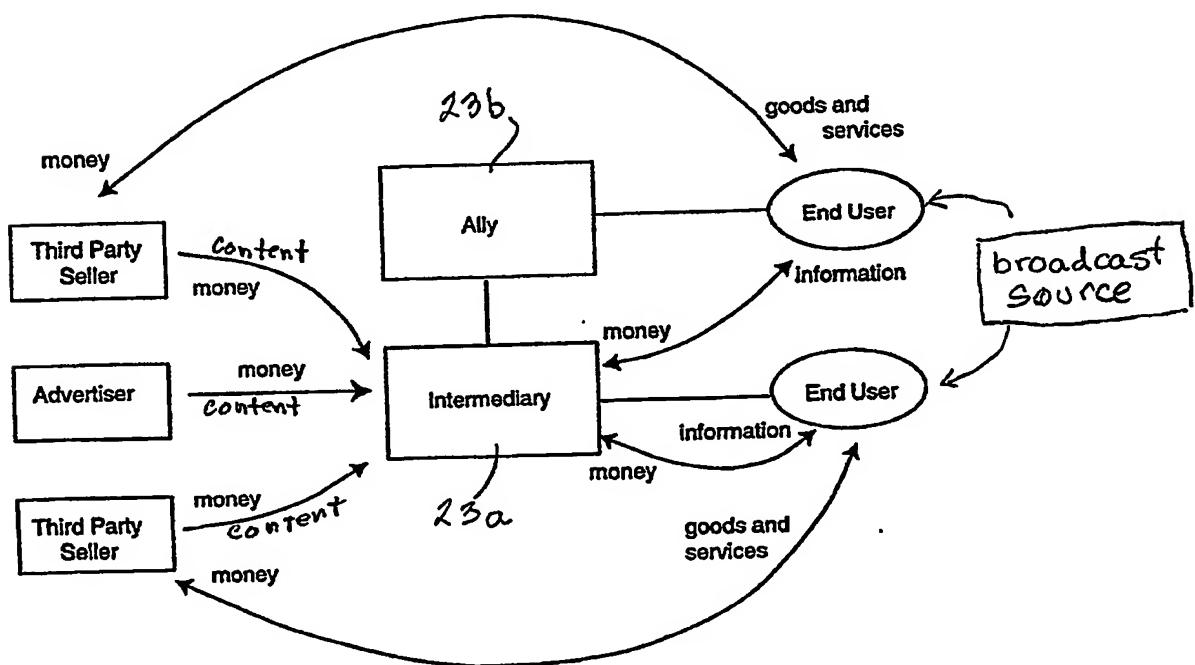


FIG 8

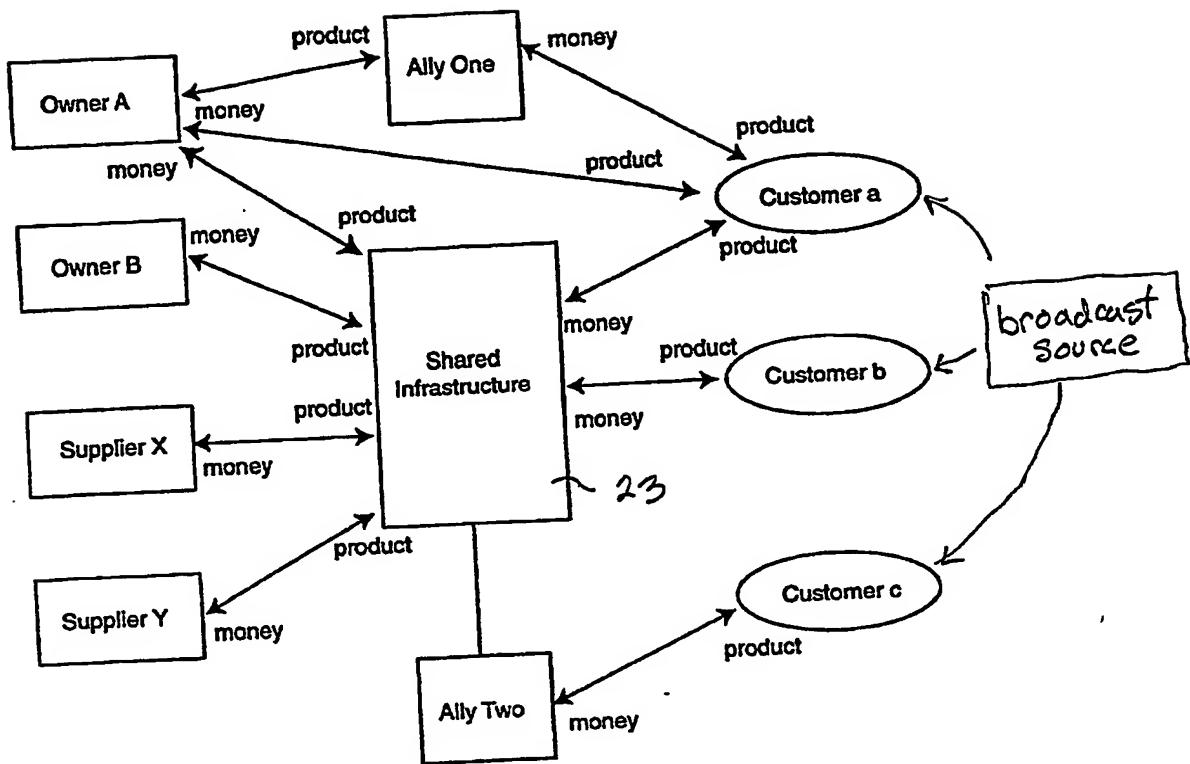


FIG 9 SHARED INFRASTRUCTURE MODEL

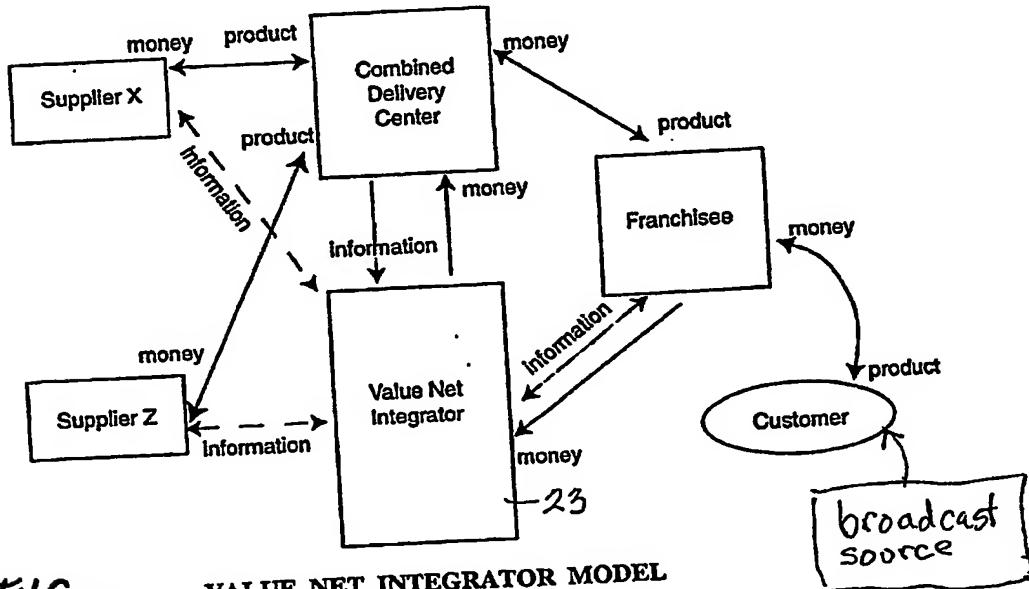


FIG 10 VALUE NET INTEGRATOR MODEL

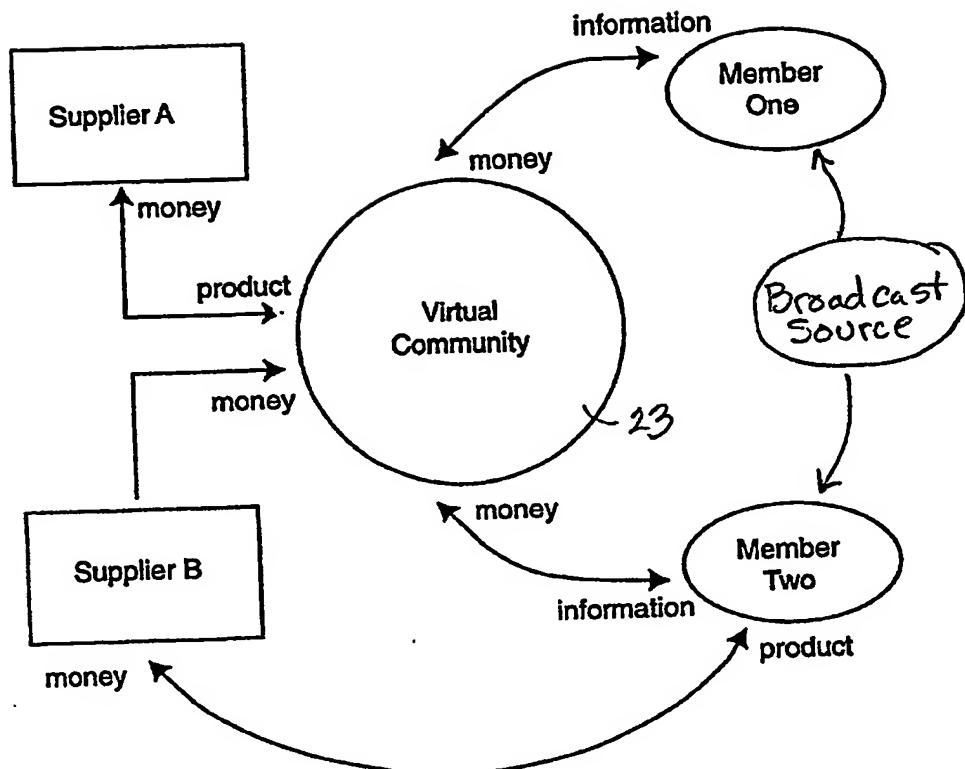


FIG 11 VIRTUAL COMMUNITY MODEL

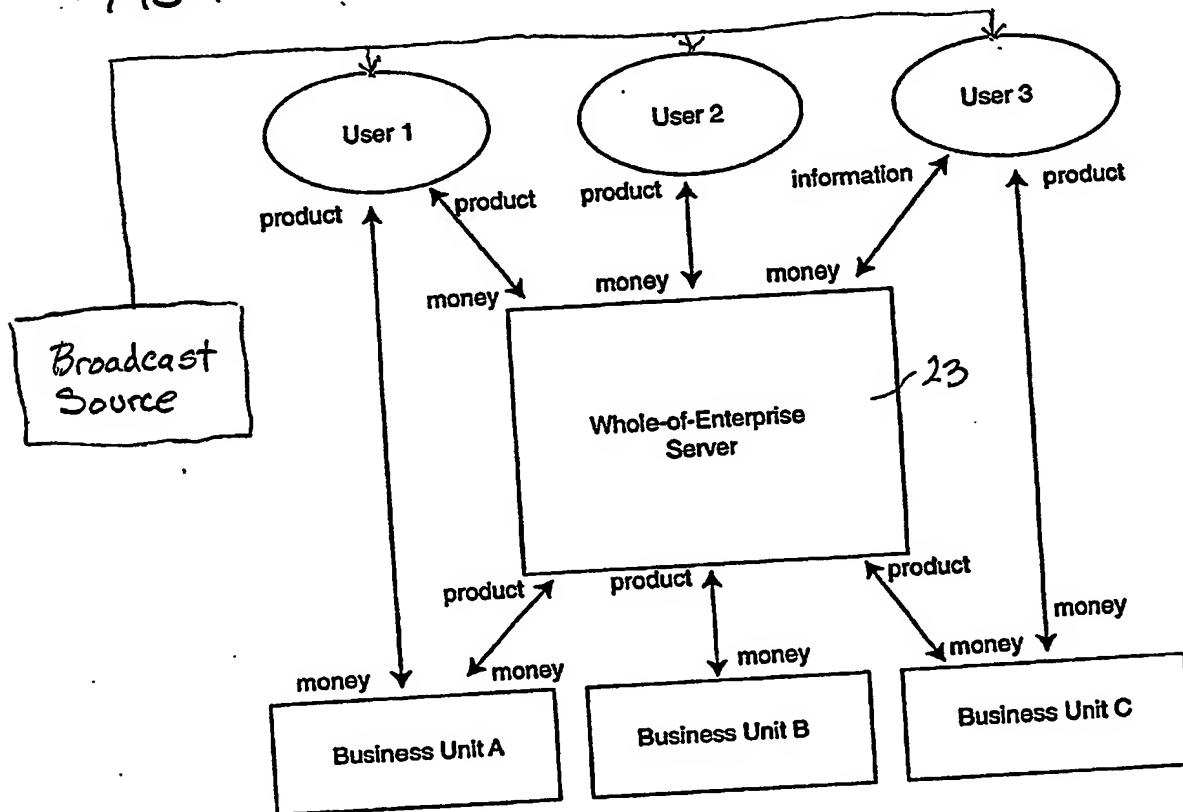


FIG 12 WHOLE-OF-ENTERPRISE MODEL

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